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AIR QUALITY IMPLEMENTATION PLAN FOR THE STATE OF ALASKA

VOLUME IV: EMERGENCY EPISODE PLAN

DECEMBER 1971

Prepared for the

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

TRW
SYSTEMS GROUP

ONE SPACE PARK • REDONDO BEACH, CALIFORNIA 90278

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1.0 PREFACE

The following is the Emergency Episode Plan defining contingency measures to be taken by designated agencies and officials of the State of Alaska and cooperating organizations, in order to protect the health of persons during air pollution episodes. An air pollution episode is defined here as an atmospheric condition in which ambient concentrations of airborne contaminants tend toward levels that imminently and substantially endanger the health of persons who are exposed to the air.

The Emergency Episode Plan for the State of Alaska was developed in accordance with Chapter IV, Title 42, August 14, 1971 Federal Register, Sec. 420.16, entitled, "Prevention of Air Pollution Emergency Episodes." The Plan consists of the following sections.

Section 2.0 - Legal Authority
Section 3.0 - Episode Criteria
Section 4.0 - Episode Action Plan
Section 5.0 - Operational Procedures
Section 6.0 - Organizational Interfaces/ Communications

The evaluation of available air quality data and the identification of major pollution sources in Alaska have resulted in the Plan presented herein. From all the evidence*, it is concluded that the threat of episodes are greatest in the following three areas, at the present time:

1. Total suspended particulates, or TSP in Anchorage and Fairbanks.
2. Carbon monoxide, or CO in Center City of Fairbanks.
3. Oxides of sulfur, expressed in terms of sulfur dioxide, SO_2 in the Ketchikan Area.

*Surveillance Volume

The Plan is designated as a mechanism for indicating public action, issuing public warning, and attempting to reduce levels of a specific pollutant concentration by reducing major source emissions. Updating will be periodically required as additional air quality data become available in order that the Plan remain sensitive to the needs of the people of the State of Alaska.

Table 1-1. REGIONAL PRIORITY DESIGNATIONS

Air Quality Control Region	Total Suspended Particulates	Sulfur Oxides	Nitrogen Oxides	Carbon Monoxide	Total Oxidants
008 Cook Inlet	I	III	III	III	III
009 Northern Alaska	I	III	III	I	III
010 South Central	III	III	III	III	III
011 South Eastern	III	IA	III	III	III

This Plan is written for present conditions and problems and will be revised and extended as needed. When adverse air quality measurements are obtained or when general industrial or urban development reaches other areas of the State, a more extensive plan will be developed. Both the air quality criteria and emergency action plans presented in this document are specific to the current air pollution problems in the State of Alaska.

2.0 LEGAL AUTHORITY

The set of actions provided for in the Emergency Episode Plan is authorized by enabling legislation as cited below. In general, legislation (a) expresses the intent of Congress to assign responsibilities for episode avoidance and (b) conveys to those so designated, specific powers for carrying out their responsibilities in the most effective manner.

2.1 ASSIGNMENT OF RESPONSIBILITIES

The Clean Air Act of 1970, Section 303 indicates the intent of the U.S. Congress in preventing or reducing the severity of air pollution disasters that affect the health of people who are exposed to contaminated air. This Act is interpreted in Chapter IV, Title 42, August 14, 1971 Federal Register, Sec. 420.16, entitled, "Prevention of Air Pollution Episodes."

2.2 EPISODE STATUS DECLARATION AUTHORITY

Announcement of an Internal Episode Watch, and Public Declarations of ALERT Status, WARNING Status, EMERGENCY Status in accordance with Section 3. and termination thereof shall be made by the Governor of Alaska, the Commissioner of the Department of Environmental Conservation or by the Administrative Officer of the local Air Pollution Control Authority in concurrence with the appropriate Chief Executive Officer of the jurisdiction in which episode conditions exist.

Table 2-1. LEGAL AUTHORITY AVAILABLE FOR STATE ACTIONS IN EMERGENCY AIR POLLUTION EPISODES

Authority	Source
Enforcement Authority	
Department of Environmental Conservation State of Alaska, as the prime agency for carrying out emergency functions.	AS 44.46.03.820
Delineation of the area of jurisdiction	AS 44.46.03.020
Basis upon which emergency actions will be initiated	AS 44.46.03.820
Manner in which the specific orders are to be issued and the time period of action	AS 44.46.03.820
Responsibility for development of an Emergency Control Action Plan prescribing specific measures for the major sources of emissions	AS 44.46.03.020
Responsibility for an evaluation of the preventive and abatement actions taken during an episode	AS 44.46.03.020
Conveyance of Specific Powers	
Control and prevent conditions which threaten or endanger the public health or welfare before the occurrence of actual injury	AS 44.46.03.820
Enforcement of the law by appropriate administrative and judicial proceedings including injunctive relief.	AS 44.46.03.210
Access to records relating to emissions of air contaminants	AS 44.46.050
The securing of necessary technical information by contract or otherwise	AS 44.46.03.020
The preparation of comprehensive plans for the control of air pollution, including air quality and emission data, performance of studies, on-site investigations and research	AS 44.46.020(a)(2)
Establishment of ambient air quality standards and emission standards for all parts of the State of Alaska	AS 44.46.020(1) AS44.46.030.020(10)
The exercise of emergency authority to limit or eliminate emissions with minimum delay	AS 44.46.03.820

Table 2-1. (continued)

Authority	Source
The imposition of penalities for failure to comply with regulations, in particular, with legally authorized action under emergency conditions	AS 44.46.03.760
The delegation of performance of duties to a subordinate agency	AS 44.46.03.210
To take any action deemed necessary to carry out statute and regulations	AS 44.46.020(2) and (4) AS 44.46.03.860 AS 44.46.03.890

3.0 EPISODE CRITERIA

The conditions described in these sections may initiate action on the part of the appropriate Air Pollution Control Authority (APCA) such as the Department of Environmental Conservation, the Tri-Borough Air Resources Management District, and Fairbanks - North Star Borough.

3.1 EPISODE WATCH

The conditions for Episode Watch consist of:

- An Atmospheric Stagnation or Wind/Dust Advisory is issued by the National Weather Service Office (Anchorage, Fairbanks or Annette), stating that stagnant atmospheric or wind/dust conditions are expected during the next 36 hours over a specific area of Alaska. In effect, the Advisory cautions of pollutant concentration buildups if air stagnation and large amounts of emissions are present or if particulate loading can be expected to drastically increase due to wind conditions. Either of these advisories will be updated at least every 12 hours during episode conditions.

- A forecast by local meteorologists that stagnant atmospheric or high wind conditions could result in high air pollution levels in Alaska.

- Validated reports of abnormally high air pollution measurements in the local area.

3.2 ALERT STAGE

The ALERT level marks the threshold at which selective control action is to begin. An ALERT status may be declared by the APCA following pollutant concentration measured at any monitoring site, and due to adverse meteorological conditions can be expected to remain at these levels or higher for the next 12 hours or more unless control measures are taken. The criteria for ALERT stage are as follows:

Particulates

- Measured by sequential tape sampler (or EPA-approved equivalent) (soiling index):

  3.0 COHs per 1000 linear feet. Running 24-hour average of two-hour samples.

- Measured by Hi-Vol (high volume sampler), or EPA-approved equivalent:

  375 $\mu g/m^3$, 24-hour average

Carbon Monoxide

- Measured by continuous non-dispersive infrared analyzer, or EPA-approved equivalent:

  15 ppm (17 mg/m^3), 8-hour average

Sulfur Dioxide

- Measured by continuous coulometric or colorimetric analyzer, or EPA-approved equivalent:

  800 $\mu g/m^3$ (0.3 ppm), 24-hour average

3.3 WARNING STAGE

The WARNING level marks the threshold of a health hazard which requires the curtailment of certain industrial activities according to a pre-arranged schedule. Continued deterioration of air quality to the point where a WARNING level concentration is reported at one or more monitoring sites will result in the declaration of a WARNING Status, based on the official weather prediction that no significant improvement in air quality is expected for the next 12 hours. The APCA may also elect to declare this episode stage in the absence of an adverse meteorological forecast solely on the basis of air quality measurements which equal or exceed the levels specified below. The following are WARNING criteria.

Particulates

- Measured by sequential tape sampler, or EPA-approved equivalent (soiling index):

  5.0 COHs per 1000 linear feet. Running 24-hour average of two-hour readings

- Measured by Hi-Vol, or EPA-approved equivalent, 24-hour accumulation:

  24-hour average, 625 $\mu g/m^3$

Carbon Monoxide

- Measured by continuous non-dispersive infrared analyzer, or EPA-approved equivalent:

  34 mg/m^3 (30 ppm), 8-hour average

Sulfur Dioxide

- Measured by continuous coulometric or colorimetric analyzer, or EPA-approved equivalent:

  1600 $\mu g/m^3$ (0.6 ppm), 24-hour average

3.4 EMERGENCY STAGE

The EMERGENCY level defines the high threshold of air pollution that must not be reached, for it constitutes a substantially dangerous health hazard. If preventive measures fail to avert this condition, all activities that produce emissions will be subject to major curtailment, in accordance with a pre-arranged schedule. Human activities will be generally curtailed. An EMERGENCY Status will be declared if any of the following ambient pollutant concentrations are reached or exceeded:

Particulates

- Measured by sequential tape sampler, or EPA-approved equivalent (soiling index):

  7.0 COHs per 1000 linear feet. Running 24-hour average of two-hour samples

- Measured by Hi-Vol, or EPA-approved equivalent, 24-hour accumulation:

  24-hour average, 875 $\mu g/m^3$

Carbon Monoxide

- Measured by continuous non-dispersive infrared analyzer, or EPA-approved equivalent:

  46 mg/m^3 (40 ppm), 8-hour average

Sulfur Dioxide

- Measured by continuous coulometric or colorimetric analyzer, or EPA-approved equivalent:

  2100 $\mu g/m^3$ (0.8 ppm), 24-hour average

These criteria are tailored to general needs of the people of Alaska and to the averaging capabilities of specified air quality monitors. The example Environmental Protection Agency criteria which are specifically applicable to the local air pollution problems are adopted for the State of Alaska.

3.5 EPISODE STAGE TERMINATION

When conditions for a declare episode status are no longer present, the episode stage reached will be terminated or reduced to the next lower stage by the appropriate public announcement. This will occur under the following conditions:

a. When ambient pollutant concentrations fall below the level specified for the stage, and a downward trend of concentration is established; and

b. When meteorological conditions that attended the high concentrations no longer exist.

3.6 SPECIAL EPISODE CRITERIA

In Alaska episode conditions are usually limited to one or two individual pollutants and to a specific locality within the State. In order to minimize disruption to the economic life of the community as a whole, this Episode Plan will hereby define special episode criteria that will enable controls to be applied with a high degree of selectivity.

3.6.1 The Specific Pollutant Situation

If concentrations measured for one or two pollutants reach or exceed criteria levels defined in Sections 3.2 - 3.4, but concentrations of other pollutants exhibit no significant increase or trend beyond 50 percent of ALERT Levels, and no improvement in weather conditions is

expected, a Specific ALERT, WARNING, or EMERGENCY Status may be declared naming the pollutants that meet these respective criteria. If concentrations of two such pollutants meet different criteria, the declared status for the episode shall be the higher of the two. A declaration shall state that an Episode Watch is being maintained on the remaining pollutants.

EXAMPLE: One-hour concentrations are as follows:

Particulates - 5.0 COHs

Carbon Monoxide - 42 ppm (EMERGENCY Level - 40 ppm)

If meteorological conditions are met, a declaration will be issued stating that a Specific EMERGENCY Status exists for carbon monoxide, while an Episode Watch is in effect for particulates.

3.6.2 The Specific Locality Situation

If high concentrations of one or more pollutants are measured at one of the monitoring sites but not at the others, and the effect is known or suspected to originate from an identifiable source or a local meteorological condition near the given monitoring site, a declaration will be made stating that a Local ALERT, WARNING, or EMERGENCY Status exists for the delineated area, and that an Episode Watch is in effect over the remaining portion of the jurisdictional area. Note that a condition for declaration of a Local Episode (ALERT, WARNING, or EMERGENCY Status) is that meteorological indications favor the maintenance or increase of high concentrations for at least a 12-hour period.

4.0 EPISODE ACTION PLAN

4.1 HIGH WIND EPISODE CONDITION - PARTICULATE

Examination of the suspended particulate measurements made in the Cook Inlet AQCR and in the Fairbanks-North Star Borough indicates that high concentrations are observed under high wind conditions. This is quite distinct from the usual episode condition when pollutant concentrations build up during periods of atmospheric stagnation and relatively low wind speed. An essential difference between the two conditions lies in the type of pollution emission sources which have the major influence on the ambient concentrations in each case. During the conventional stagnation episode, man-made stationary and mobile sources are most important. Under high winds, however, the natural evolution of airborne dust from exposed soil is greatly increased and the relative importance of man-made sources is diminished. These considerations significantly affect the design and implementation of a Episode Control Plan for high wind situations.

The National Weather Service Offices in Anchorage and Fairbanks will issue High Wind Forecasts to the respective APCA, and these will be utilized in initiating Episode Watch Procedures. These forecasts will be updated every 12 hours during the episode.

4.1.1 General Control Measures

A large amount of discretionary authority will reside with the Episode Coordinator during a High Wind Episode. As it may not be possible to prescribe emission reduction measures which will be effective in reducing suspended particulate matter levels under these conditions, the general control actions will be directed toward minimizing exposure to the adverse pollution levels. To this end, the coordinator will issue a public announcement describing the situation and strongly recommending the curtail-

ment of all unnecessary travel and outdoor activity until the ambient air quality conditions improve. In addition, the coordinator may elect from the following set of control actions depending upon his evaluation of the situation:

1. A general ban on open burning and solid waste incineration.
2. A directive to elementary and secondary schools to eliminate outdoor activities or to close entirely.
3. In cooperation with the local Public Safety Agency, restriction of traffic movement in seriously affected areas.

4.1.2 Specific Control Measure

During a high wind episode, the Episode Coordinator will exercise judgement regarding the imposition of specific source curtailment measures based on wind direction and other factors. If the measured ambient pollutant concentrations appear equally high up and down wind from a major stationary source or source complex, there would be little practical justification for a restriction on source operations. Any stationary source may, in the public interest, be required to reduce emissions according to its approved emergency reduction plan submitted with its Permit to Operation Application.

4.2 STAGNATION EPISODE - PARTICULATES

When the ALERT, WARNING, or EMERGENCY conditions are identified, a public declaration will be made. Upon such declaration, a stepwise reduction in man-made emissions will be performed in accordance with the following Plan. Responsibility for action to achieve emission reduction will rest with the owner, manager, and principal operator(s) of the emission source.

When an episode occurs, remedial measures are directed primarily at the major point sources of the specific pollutant(s) for which episode levels are observed or predicted. However, in Fairbanks and Anchorage actions are also prescribed for the area sources that include large numbers of small emitters and may require restrictions upon the general public. Hence, the Episode Action Plan specifies both general measures and specific source curtailment for each Episode Status.

Depending upon the meteorological conditions, any and all point sources emitting 100 tons or more of particulate matter may be called upon by the Director of the Tri-Borough Air Resources Management District to reduce emissions in accordance with a well-defined Plan to be submitted in the semi-annual report. The Plan will be generated by the Operator of each such facility and will show detailed procedures for curtailing emissions during the ALERT, WARNING, and EMERGENCY Stages of the episode. This Plan will also delineate those measures available to the source for reducing the emission of each specific pollutant characteristic of the source.

In the case of Fairbanks-North Star Borough, the central city of Fairbanks is the prime object of the Emergency Action Plan for both particulates and carbon monoxide as described herein. As a result, the specific measures to be taken relate to those point sources which are believed to affect center city air quality. Depending upon meteorological conditions, however, any and all sources in addition to those indicated

in Sections 4.2.1.2, 4.2.2.2, and 4.2.3.2 or 4.3.1.2, 4.3.2.2, and 4.3.3.3 emitting 100 tons or more of either particulates or carbon monoxide may be called upon by the Chairman of the Fairbanks-North Star Borough to reduce emissions in accordance with a well-defined Plan. The Plan will be generated by the Operator of each facility and will show detailed procedures for curtailing emissions during the ALERT, WARNING, and EMERGENCY stages of the episode in accordance with Part B of Table I of Appendix L, Title 42, Chapter IV, Part 420 of the Federal Register, August 14, 1971.

As the special studies described in the Air Quality Surveillance Volume are completed, the Episode Action Plan will be updated to reflect the more complete understanding of the particulate pollution problem.

4.2.1 General Episode Watch Action

Sources are to be advised by the APCA that an Episode Watch is in effect, but no action to reduce emissions is required in accordance with standby plans. However, certain preparatory measures may be taken in both Fairbanks and Anchorage which shall include:

1. For coal-burning power generating plants:
   a. Contact outside power sources to determine the amount of power available for purchase.
   b. Be prepared to reduce operation of units that are known to rank high in pollutant emissions per kilowatt hour and to phase in or increase operation of those that rank lower in this respect.
   c. Assure the availability of preferably low sulfur oil or gas (if available in the locale).

While no action is required on the part of the general public at this time, the Episode Watch Status will be the occasion for the APCA to establish a full communications network for further action.

4.2.2 Action on Total Suspended Particulates (TSP)

4.2.2.1 ALERT Status - Particulates

When the ALERT Status for particulates is declared, the following actions will be taken to reduce emissions of this pollutant.

- General Measures, ALERT Status

  The following measures will be taken by the APCA:

  1. Solid or liquid waste incineration from office buildings, apartment houses, and other facilities will be performed only during certains hours announced by the APCA. However, voluntary postponement until episode termination is desirable.
  2. There will be no open burning.
  3. Soot blowing or boiler lancing on fuel-burning equipment (including ships in harbor) if required, will be done only during certain hours announced by the APCA.
  4. Industrial batch processes as applicable will be voluntarily reduced.
  5. Persons operating motor vehicles will be requested to eliminate unnecessary driving

- Specific Curtailment Action, ALERT Status

  The point sources (over 100 tons/year emission) will be notified to take curtailment action during ALERT Status for particulate emissions. The following existing sources have been identified in the Fairbanks-North Star Borough:

  Golden Valley Electric (Illinois Street Plant)
  Fairbanks Municipal Utilities
  University of Alaska
  Fort Wainwright

  The action will consist of the following:

  1. Reduce coal-burning operations to 70 percent of normal load or convert to 30 percent oil.
  2. Increase load at company stations that are outside the episode area.
  3. Purchase power from adjacent communities.

  The APCA will notify Fairbanks International Airport to prepare to reduce aircraft emissions over the center city area if WARNING Status is declared.

4.2.2.2 WARNING Status - Particulates

When the WARNING Status for particulates is declared, the following emission reduction actions will be taken in addition to those taken at the ALERT levels.

- General Measures, WARNING Status

  1. Solid or liquid waste incineration from office buildings, apartment houses, and other facilities will be postponed until episode termination.
  2. There will be no open burning.
  3. Soot blowing or boiler lancing on fuel-burning equipment, if required, will be done only upon direct approval of the appropriate APCA.
  4. Driving automobiles at speeds in excess of 20 m.p.h. will be prohibited in certain areas to curtail road dust generation.
  5. Industrial batch processes will be reduced to 50 percent of normal load.

- Specific Curtailment Action, WARNING Status

  All point sources over 100 tons/year emissions will be required to make such emission reductions as are specified in their curtailment plan for this episode stage. The following existing point sources will be notified by the APCA to take curtailment action in the Fairbanks-North Star Borough during WARNING Status for particulate emissions.

  Golden Valley Electric (Illinois Street Plant)
  Fairbanks Municipal Utilities
  University of Alaska
  Fort Wainwright

  The action will consist of the following:

  1. Reduce coal-burning operations to 50 percent of normal load or convert to 50 percent oil.
  2. Maximize load at company stations that are outside the episode area. The APCA will notify Fairbanks International Airport to:

     a. Discontinue runup of engines undergoing repair or maintenance.
     b. Limit take-offs to a minimum spacing of 15 minutes.

4.2.2.3 EMERGENCY Status - Particulates

When the EMERGENCY Status for particulates is declared, the following actions will be taken in addition to those specified for the ALERT and WARNING Stages.

- General Measures, EMERGENCY Status

1. Automobile traffic in areas determined by the episode coordinator will be prohibited to eliminate road dust generation and reduce driving hazard.
2. Incineration of any form of solid or liquid waste will be prohibited.
3. There will be no open burning of any kind of fuel, waste, vegetation, refuse, or other material.
4. During the heating season, the operation of heating units using coal in all buildings with the affected area including public and private office buildings, apartment houses, shops, hotels, schools, recreational facilities, libraries, auditoriums, warehouses, etc., but not include hospitals, sanatoriums, children's homes, and homes for the aged and infirm, will be at thermostat temperature settings no higher than 60 degrees Fahrenheit.
5. During the heating season, heating units using coal in single-family and small multi-family (six-family units or less) that are equipped with thermostats will operate at settings no higher than 60 degrees Fahrenheit. Heating units that are not regulated by thermostats will be operated at a rate that is approximately 20 percent lower than normal for the corresponding season and weather conditions.
6. Exceptions under foregoing 4 and 5 are allowed for persons who are aged, infirm, or ill and under the care of a physician. Exceptions are also allowed under formal permit for facilities where a drastic change in temperature could result in irreparable damage, such as computer rooms, environmental laboratories, cryogenic materials facilities, hazardous materials storages, and meat lockers.
7. All places of employment, where large amounts of fuel are used for heat or hot water will immediately suspend such operations.

8. Places of employment will release working personnel ahead of normal close of day, and on a staggered arrangement, based upon travel time to residence for each employee.

9. All batch processes emitting particulate matter, outdoor construction and demolition work will be suspended until episode termination, except for work that, if left unfinished, might result in a public hazard.

10. All commercial and manufacturing establishments not specifically mentioned in this order will institute such actions as will result in reduction of particulate emissions to the maximum reasonable extent.

- Specific Curtailment Action, EMERGENCY Status

All point sources will be required to initiate the maximum reductions called for in their episode emission reduction plans. The following existing point sources will be notified by the APCA to take curtailment action in the Fairbanks-North Star Borough during EMERGENCY Status for particulate emissions:

Golden Valley Electric (Illinois Street Plant)
Fairbanks Municipal Utilities
University of Alaska
Fort Wainwright

The action will consist of the following:

1. Reduce coal-burning operations to 30 percent of normal load or convert to 70 percent oil.

2. Reduce line voltage by 8 percent of normal. The APCA will notify Fairbanks International Airport to:

    a. Cancel flights.

    b. Divert flights scheduled to terminate at Fairbanks International Airport to alternate airports outside the Fairbanks area.

4.2.3 Action on Carbon Monoxide (CO)

The following Emission Action Plan for carbon monoxide applies to the area of Fairbanks-North Star Borough. A large percentage of the carbon monoxide emissions in the area originate from mobile sources. Hence, the measures prescribed herein for reducing emissions are directed at motorists, particularly those who are accustomed to idling their engines continuously

during Arctic winter days. A partial solution of this problem, recommended in the Control Strategies Volume, requires the use of plug-in heaters on parking lots in the city.

4.2.3.1 ALERT Status, Carbon Monoxide

When the ALERT Status for carbon monoxide is declared, the following measures will be taken to reduce emissions of this pollutant.

- General Measures, ALERT Status

  1. An appeal will be made to the public through news media to curtail unnecessary use of private vehicles and to use public transit for local travel.
  2. Operation of government vehicles will be reduced to higher priority needs as defined by officials of the rank of bureau chief or equivalent.
  3. The public will be reminded of the boundaries of the center city (4.2.3.2) where concentrations of carbon monoxide are highest. Advisories will discourage incursions into this area unless absolutely necessary, for the duration of the episode.

- Specific Curtailment Action, ALERT Status

  In accordance with federal requirements, the following point sources will be notified by the APCA to take curtailment action in the Fairbanks-North Star Borough during ALERT Status for carbon monoxide emissions:

  Golden Valley Electric (Illinois Street Plant)
  Fairbanks Municipal Utilities
  University of Fairbanks
  Fort Wainwright

  The action will consist of the following:

  1. Reduce coal-burning operations to 70 percent of normal load or convert to 30 percent oil.
  2. Increase load at company stations that are outside the episode area.
  3. Purchase power from adjacent communities.

The APCA will notify Fairbanks International Airport, Metro Field, and Phillips Field to be prepared to reduce aircraft operations over center city area if the WARNING Status is declared.

4.2.3.2 WARNING Status, Carbon Monoxide

When the WARNING Status for carbon monoxide is declared, the following measures will be taken to reduce emissions.

- General Measures, WARNING Status

1. The center city is defined by the following boundaries:

   Chena River on the North and East, along Fairbanks city boundaries to 23rd Avenue. 23rd Avenue to Lathrop Street. Lathrop Street north to Chena River. (See Figure 4-1.)

2. All passenger vehicles entering the center city area will be restricted to those carrying four or more persons. All traffic operations within the center city area will be discouraged and an emergency bus service will be initiated for persons outbound from the center city.

3. The public will be notified by news media that no automobile or truck traffic will be permitted within the center city area, as defined, if and when an EMERGENCY Status for carbon monoxide is declared.

4. Designated principal avenues will be made one-way outbound from center city. These routes are listed and shown in Figure 4-1.

   Airport Road one way going west to Lathrop
   Cushman Road one way going south from Airport Road to 26th Avenue
   Gafney Road going east from Cushman Road to Fort Wainwright
   Cushman Street bridge one way going north.

5. All automobile idling within center city except in traffic will be prohibited.

6. All schools in the center city will be dismissed.

7. Staggered working hours will go into effect in all governmental offices (State, Federal, and Municipal) and in as many private offices as volunteer to do so.

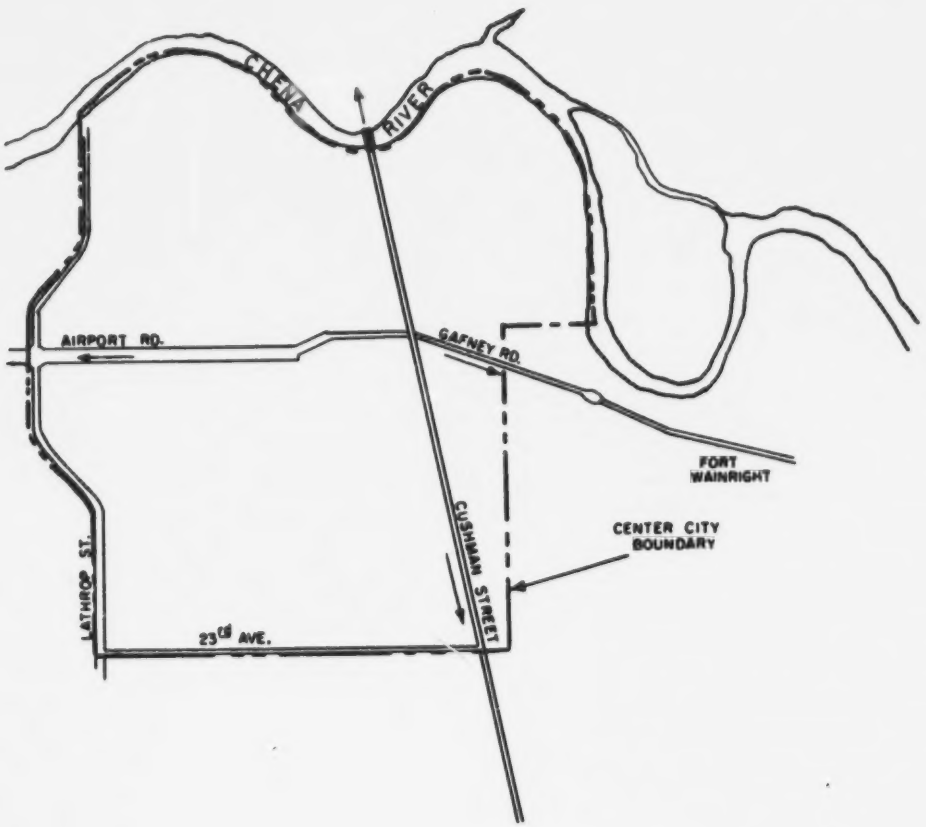

Figure 4-1. CENTER CITY DESIGNATION AND ONE-WAY ROUTE ASSIGNMENTS FOR THE FAIRBANKS-NORTH STAR BOROUGH FOR USE IN CO EPISODE STAGES.

8. Taxi cruising will be prohibited in all parts of the center city.
9. All deliveries and refuse collecting will be curtailed.

- Specific Curtailment Action, WARNING Status

The following existing point sources will be notified by APCA to curtail action in the Fairbanks-North Star Borough during WARNING Status for carbon monoxide emissions:

Golden Valley Electric (Illinois Street Plant)
Fairbanks Municipal Utilities
University of Alaska
Fort Wainwright

The action will consist of the following:

1. Reduce coal-burning operations to 50 percent of normal load or convert to 50 percent oil.
2. Maximize load at company stations that are outside the episode area.
3. Purchase power from adjacent communities.

The APCA will notify Fairbanks International Airport , Metro Field, and Phillips Field to:

1. Discontinue runup of engines undergoing repair or maintenance.
2. Limit take-offs to a minimum spacing of 15 minutes.
3. Minimize air time over Fairbanks center city.

4.2.3.3 EMERGENCY Status, Carbon Monoxide

When an EMERGENCY Status for carbon monoxide is declared, the following emission reduction actions will be taken.

- General Measures, EMERGENCY Status

1. No automobile or truck traffic will be permitted within center city as outlined above, except for designated emergency vehicles.
2. Throughout the Fairbanks air shed, all use of motor vehicles will be prohibited except as permitted by Borough authorities. The air shed is defined as the area bound by the Tanana River, the west portion of

the China Ridge Loop Road. South on Steese Highway and along Trainer Road including Fort Wainwright. Then south on Montgomery and Badger Roads to Richardson Highway.

3. All stores will be closed except for those engaged in the sale of food and medicines.
4. Through bus and truck service will be rerouted to avoid the center city.
5. Scheduled bus service will be curtailed (if applicable).

- Specific Source Curtailment, EMERGENCY Status

The following point sources will be notified by the APCA to take curtailment actions in the Fairbanks-North Star Borough during an EMERGENCY Status for carbon monoxide emissions:

Golden Valley Electric (Illinois Street Plant)
Fairbanks Municipal Utilities
University of Alaska
Fort Wainwright

The action will consist of the following:

1. Reduce coal-burning operations to 30 percent of normal load or convert to 70 percent oil.
2. Reduce line voltage by 8 percent of normal.

The APCA will notify Fairbanks International Airport, Metro Field, and Phillips Field to:

1. Cancel flights.
2. Divert flights scheduled to terminate at Fairbanks International Airport to alternate airports outside the Fairbanks area.

4.2.4 Action on Sulfur Oxides (SO_x)

The contingency plan for sulfur dioxide in Southeastern Alaska will consist of a public announcement released through Borough Headquarters in Ketchikan. The public announcement will correspond to the following levels of SO_x concentration:

- WARNING Status as defined in Section 3.3.
- EMERGENCY Status as deinfed in Section 3.4.

5.0 OPERATIONAL PROCEDURES

The operational procedures associated with the implementation of the Episode Plan require a definition of organization responsibilities for action and coordination. The details of these procedures will necessarily change as the occasion arises for implementation of the Plan. The division of responsibility for each of the major tasks required to be performed is delineated in the following paragraphs. They consist of the following:

Weather Forecasting - Section 5.1
Air Quality Data Acquisition - Section 5.2
Declaration of Episode Stages - Section 5.3
Episode Action Plan Implementation - Section 5.4
Source Surveillance - Section 5.5

5.1 WEATHER FORECASTING

The responsibility for generating weather information relating to forecasts of high wind conditions in the Tri-Borough area lies with the National Weather Service Forecast Office (NWS) in Anchorage. Local Offices in Fairbanks and Annette shall disseminate advisory information to the Fairbanks - North Star Borough agency and the DEC, respectively. The expected frequency of episode conditions in the North Star Borough fully justifies the addition of an air pollution meteorologist to the Fairbanks Weather Bureau Staff. This individual would be responsible for the issuance and updating of stagnation advisories. During routine operation, the Weather Service will provide information on weather conditions to the APCA upon contact from such agency. Should an Advisory occur at any time, the NWS will notify the APCA automatically. As the Episode Stages are declared, the APCA will request that weather forecasts from the appropriate NWS local office be submitted every 12 hours. The current capabilities of the referenced weather stations are presented in Appendix B.

5.2 AIR QUALITY DATA ACQUISITION

The responsibility for air quality data acquisition during routine operations, during an Episode Watch and during the Episode lies with the

APCA. Upon initiation of an Episode Watch, the APCA will assume the responsibility of collecting air monitoring data on an hourly basis.

5.2.1 Fairbanks-North Star Borough

In Fairbanks, the Downtown air quality monitoring site will be designated for EMERGENCY Episode for both CO and Particulate sampling. It consists of a CO non-dispersive infrared monitor and two tape samplers. The monitoring site is located within a few blocks of the offices of Fairbanks-North Star Borough. As a result the site can be manned within minutes after an Episode Watch is declared. During routine operations the CO monitor will be equipped with an internal audible alarm system to allow for immediate detection of excessive CO concentrations. This will be accomplished by a special arrangement between the Borough Air Pollution Control Officer and the local fire station which will be the site of the audible alarm.

During Episode Watch the tape samplers will be run in parallel, each providing data for alternate 2 hour periods. The data will be evaluated by the APCA using a spot evaluator. The high-vol air sampler, also available at this station, will also be operated continuously for a 24-hour period.

5.2.2 Tri-Borough Air Resources Management District

In Anchorage, EMERGENCY Episode conditions may arise for total suspended particulates. The instrumentation used for initial Episode Watch will be located at the Tri-Borough Air Resources Management District Laboratory and will consist of a tape sampler located at the City Fire Station. During a meteorological advisory or on the basis of measured poor air quality, the tape samplers will be alternately used to provide data on two-hour intervals. The high-vol sampler, also available at this station, will be operated continuously during the Episode.

5.2.3 Ketchikan

In Ketchikan, EMERGENCY Episode conditions may arise out of excessive SO_x emissions from the local pulp mill. A continuous flame

photometric SO_2 analyzer will be operated in the area and will be the responsibility of the Regional Sanitarian. The DEC will arrange for an internal audible alarm system whereby high SO_2 concentrations will be immediately ascertained. Upon noting the alarm, the Sanitarian will immediately notify the DEC in Juneau. Under Episode Watch conditions, the DEC will receive data by telephone on an hourly basis. The other SO_2 bubblers located in the region, will start operation on a 24-hour basis during Episode Watch.

5.3 DECLARATION OF EPISODE STAGES

The basis for Episode Stages declaration will first be evaluated by the APCA in the region. After reviewing the meteorological advisory and/or air quality data, the APCA will advise the appropriate authorities to formally declare an Episode Stage.

The Announcement of an internal Episode Watch, and Public Declarations of ALERT, WARNING Status, EMERGENCY Status and termination thereof shall be made by the Governor of Alaska, the Commissioner of the Department of Environmental Conservation or by the administrative officer of the local air pollution control Authority in concurrence with the appropriate chief executive officer of the jurisdiction in which episode conditions exist.

The declaration of Episode stages will be accomplished by a public announcement declaration which will typically consist of text presented in Figures 5-1 and 5-2. It will be the responsibility of the local APCA to insure that the news media disseminate this information.

The authorities who will make Episode declarations are as follows:

Fairbanks North Star Borough

Pollution Control Office in conjunction with the Borough Chairman (the latter makes the announcement)

Tri-Borough Air Resources Management District

Chairman of the Air Pollution Control Commission in conjunction with the Borough Chairman (the latter makes announcement)

Figure 5-1
PUBLIC DECLARATION
Episode Forecast

NEWS RELEASE

FOR IMMEDIATE RELEASE

At (Time) , (Date) the National Weather Service Forecast Office in Anchorage notified the Tri-Borough Air Resources Management District that weather conditions consisting of high wind conditions are developing in the Cook Inlet Area. Similar weather conditions are forming over the Coast from Bristol Bay to Yakutat. These weather conditions are expected to continue until late tomorrow (Date) and may result in an increase in the levels of particulate matter in the air.

According to the project engineer at the Tri-Borough Air Resources Management District there has been some increase in the levels of particulates but the proportions of other contaminants have not reached a point where calling of an air pollution alert is necessary or required.

It was also announced that an Emergency Control Center is being placed on a 24-hour operational basis. In order to be fully cognizant of the problems as they arise, the center will maintain a close watch on the conditions and report to the public if there is need for any specific activity.

Should conditions deteriorate, another statement will be released within 24 hours.

Figure 5-2
PUBLIC DECLARATION
Episode Forecast

NEWS RELEASE

FOR IMMEDIATE RELEASE

At (Time) , (Date) the National Weather Service Forecast Office in Fairbanks notified the Fairbanks-North Star Borough that weather conditions consisting of high pressure and low wind speed are developing in the Fairbanks-North Star area. Similar weather conditions are forming over the rest of the Tanana Valley. These weather conditions are expected to continue until late tomorrow (Date) and may result in an increase in the levels of carbon monoxide.

According to the project engineer at the Fairbanks-North Star Borough Offices there has been some increase in the levels of carbon monoxide but the proportions of other contaminants have not reached a point where call-in of an air pollution alert is necessary or required.

It was also announced that an Emergency Control Center has been placed on a 24-hour operational basis. In order to be fully cognizant of the problems as they arise, the center will maintain a close watch on the conditions and report to the public if there is need for any specific activity.

Should conditions deteriorate, another statement will be released within 24 hours.

Southeastern Alaska (Ketchikan)

Department of Environmental Conservation
Juneau, Alaska in conjunction with the Chairman of Ketchikan Borough (the latter releases the announcement)

5.4 EPISODE ACTION PLAN IMPLEMENTATION

The Control Center for emergency action will be at the offices of the appropriate Air Pollution Control Authority and all functions described in the following paragraphs will either be performed or directed from there.

The facility requirements will consist of office space and telephones for up to seven individuals. Provision for displays of air quality data should include charts and movable markers, preferably magnetic. During a forecast stage or declared Episode Status, readings should be posted every two hours. In order that observed concentrations can be compared with base-line data, the latter should consist of daily high and low readings for each pollutant for the preceding two weeks. Criteria levels should be shown on the chart for each pollutant.

At the top of each chart there should be a removable large shingle on which the word "ALERT", "WARNING", or "EMERGENCY", corresponding to the declared Episode Status, appears in block letters that are at least three inches high.

The wall display also should include a base map of the State of Alaska or an appropriate enlarged map of the local Air Quality Control District prominently showing all major point sources and monitoring sites. The map should be mounted so that it can be overlaid with sheets of acetate or similar material on which isopleths or other useful information may be entered.

5.4.1 Partial Activation

As the APCA receives the National Weather Service advisory, it formally documents the information in a format indicated in Figure 5-3.

Figure 5-3

METEOROLOGICAL ADVISORY

National Weather Service Advisory:_____

_____

_____

_____

_____

_____

_____

_____

Received by: Name_____

Date_____ Time _____

Areas Affected:_____

_____

_____

_____

_____

_____

_____

_____

It will immediately gather and activate a team of two individuals previously designated for this task. The Stet required for partial activation are a Coordinator and an air quality monitor. These coordinators are listed below.

1. Ketchikan Gateway Borough
   Department of Environmental Conservation
   - Air Quality Control Engineer

2. Tri-Borough Air Resources Management District
   - Project Engineer

3. Fairbanks-North Star Borough
   - Pollution Control Officer

The Coordinator will perform, in the manner shown in Figure 5-4, the following functions:

a. Verify air quality trends as provided by the Air Quality Monitor.

b. Maintain contact with appropriate decision-makers including offices of higher authority. Arrange for having telephone lines open through the interface contact with public safety listed in Section 6.5.

c. Disseminate notices on impending abatement action and later, as required, convey formal notices for abatement through the interface contact(s) listed in Section 6.2 and record this action on Figure 5-5.

d. Keep news media fully informed of development through the interface contact listed in Section 6.3.

e. Notify the Department of Environmental Conservation if applicable through the interface contact listed in Section 6.4.

f. Notify the EPA through Region Office, and Anchorage Office through interface contacts, listed in Section 6.6. Region X will contact the EPA Emergency Operations Control Center in Research Triangle Park, North Carolina.

The Coordinator will be assisted by another person designated as the Air Quality Monitor responsible for manning the air sampling equipment, acquiring, updating and analyzing the data and documenting relevant data. He will enter these data in a format indicated in Figure 5-6. The

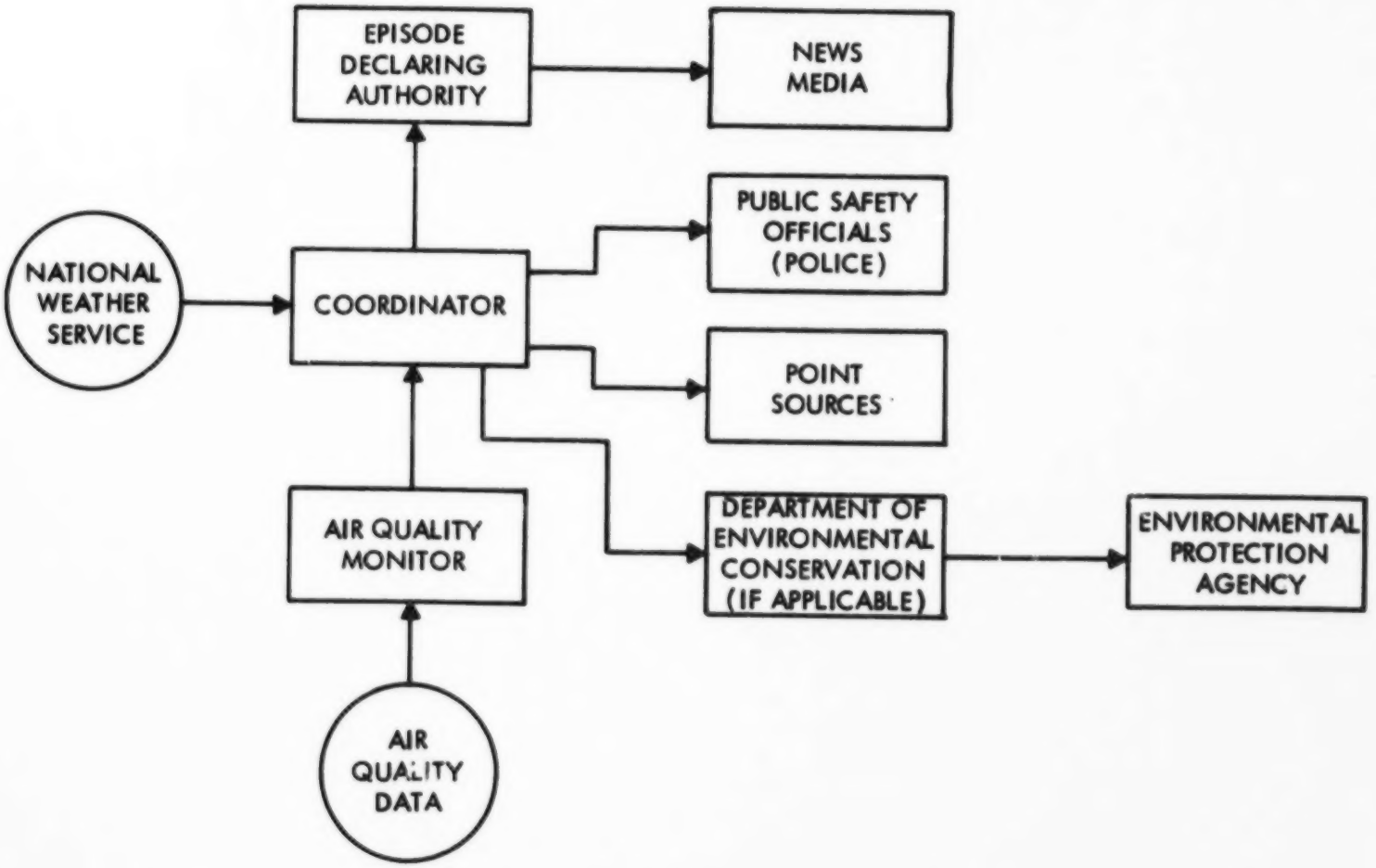

Figure 5-4. Episode Watch Organization

Figure 5-5

COMMUNICATIONS CHECKLIST - Fairbanks-North Star Borough

EPISODE STAGE _____

Episode Notifications

Declared: Date_____ Time _____

CONTACT	TELEPHONE NUMBER	CALLED BY (initials)	TIME	INDIVIDUAL CONTACTED
Golden Valley Electric (Superintendent of Power Plant)	454-1151 Ext. 259			
Fairbanks Municipal Utilities (Superintendent of Power Plant)	456-6678			

Coordinator will obtain all necessary approvals for Figures 5-7 through 5-10.

5.4.2 Full Activation

The APCA will utilize personnel in addition to those described above to fully activate Emergency Episode operations. Personnel from various areas within the Department of Environmental Conservation, Anchorage Borough, and Fairbanks Borough or the University of Alaska should be contacted for assistance, as required. The additional personnel, performing in a mode presented in Figure 5-11, will consist of the following:

1. A Meteorologist to interpret weather data
2. An attorney experienced in legal aspects of air pollution abatement
3. A transportation specialist, principally to handle problems relating to curtailment or cessation of private automobile and truck traffic and interface with police enforcement of all abatement action through interface, listed in Section 6.5. It will be the responsibility of the local public safety agencies to enforce and implement emission abatement plans as defined in paragraphs 4.2.1.1, 4.2.2.1, 4.2.3.1, 4.3.1.1, 4.3.2.1 and 4.3.3.1. The exact definition of the actions to be taken will be reported in detail in the first semi-annual report.
4. A public information specialist to disseminate announcements to the public and the media relieving the Coordinator of this duty.
5. A senior clerk to assist the Air Quality Monitor to collect, store and file all forms and data.

5.4.3 Termination

Upon declaration of Episode Termination, the Emergency Control Center shall revert from Full Activation to Partial Activation for a period of two (2) hours, and then to the Routine Surveillance Mode. This transition to deactivation will provide time for a quick review and assessment of the event and check on all reports and data that may be need for an after-action report and other purposes.

Figure 5-6. Air Quality Data: Activation Mode

Station:_____

Date:_____Time:_____

Reported by:_____

Received by:_____

Time Period Reported:_____to_____

Date	Time	Particulate COHS	Particulate $\mu g/m^3$	SO_2 ppm	CO ppm
	1200-1400				
	1400-1600				
	1600-1800				
	1800-2000				
	2000-2200				
	2200-2400				
	0000-0200				
	0200-0400				
	0400-0600				
	0600-0800				
	0800-1000				
	1000-1200				

Figure 5-7

WATCH Declaration Sheet

Area Affected:_____

Prior Level:

Pollutant(s):

Air Quality Data Summary:_____

_____

_____

_____

Meteorological Summary:_____

_____

_____

_____

Other:_____

_____

_____

_____

WATCH
Conditions Met: Date_____ Time_____ _____
(Signed)

WATCH
Authorized: Date_____ Time_____

BY: _____

to be in effect until:_____

SURVEILLANCE_____ or ALERT_____ Declared: Date_____ Time_____

Figure 5-8

ALERT Declaration Sheet

Area Affected:_____

Prior Level: Watch Warning

Pollutant(s): Particulate SO_2 CO

Air Quality Data Summary:_____

_____

_____

_____

_____

Meteorological Summary:_____

_____

_____

_____

Other:_____

_____

_____

ALERT
Conditions Met: Date _____ Time_____ _____
(Signed)

ALERT
Authorized: Date _____ Time_____

BY: _____

To be in effect until_____

WATCH_____ or WARNING_____ Declared: Date_____ Time_____

Figure 5-9

WARNING Declaration Sheet

Area Affected: _____

Prior Level: Alert Emergency

Pollutant(s): Particulate SO_2 CO

Air Quality Data Summary: _____

_____

_____

_____

Meteorological Summary: _____

_____

_____

_____

Other: _____

_____

_____

_____

WARNING
Conditions Met: Date: _____ Time _____ _____
(Signed)

By: _____

To be in effect until: _____

ALERT _____ or EMERGENCY _____ Declared: Date _____ Time _____

Figure 5-10

EMERGENCY Declaration Sheet

Area Affected: _____

Pollutant(s): Particulate SO_2 CO

Air Quality Data Summary: _____

_____

_____

_____

Meteorological Summary: _____

_____

_____

_____

Other: _____

_____

_____

EMERGENCY
Conditions Met: Date _____ Time _____ _____
(Signed)

EMERGENCY
Authorized: Date _____ Time _____

BY: _____

Approved: Governor, State of Alaska

Date _____ Time _____ By _____
(Signed)

To be in effect until _____

WARNING _____ Declared: Date _____ Time _____

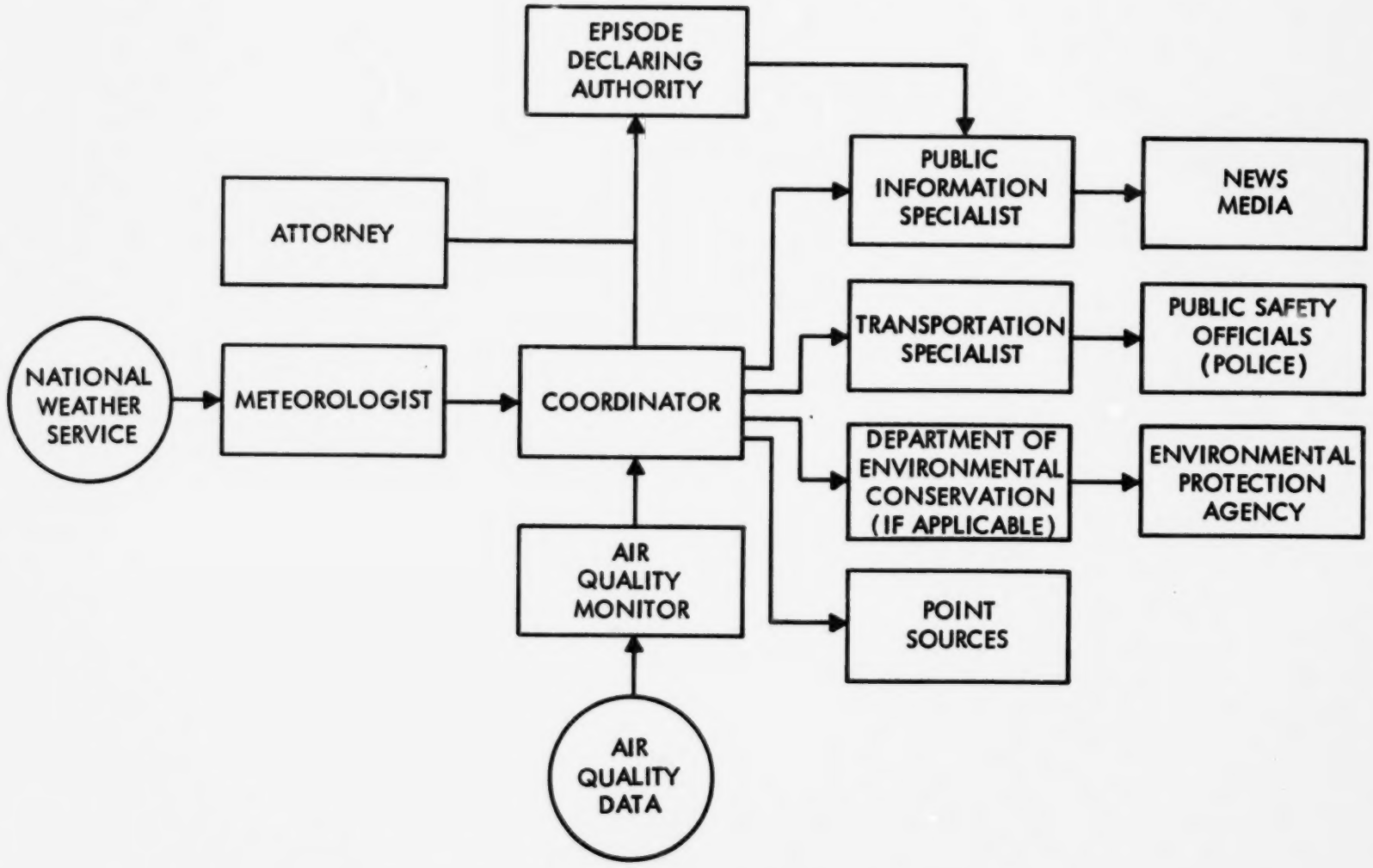

Figure 5-11. Emergency Episode Action Organization

5.5 SOURCE SURVEILLANCE

All major sources operating under emission curtailment plans will be periodically (at least every 24-hours) visited by a member of the appropriate APCA. In the case of curtailment of motor vehicle traffic, the local police agencies will perform the enforcement function. During full activation the transportation expert on the Control Center staff will maintain close contact with the police field enforcement personnel.

6.0 ORGANIZATIONAL INTERFACES/COMMUNICATIONS

The following communication interfaces will exist between organizations during an Emergency Episode:

APCA - National Weather Service

APCA - Point Sources (Fairbanks, Anchorage, and Ketchikan)

APCA - News Media

APCA - State of Alaska

APCA - Local Public Safety Organization

State of Alaska - Environmental Protection Agency, Region X offices and the EOCC in Research Triangle, N.C.

APCA - Local Telephone Company

6.1 NATIONAL WEATHER SERVICE

The following offices are sources for meteorological data.

- Fairbanks-North Star Borough

  The National Weather Service
  Chief Meterologist, Telephone 452-3553

- Tri-Borough Air Resources Management District

  The National Weather Service - Anchorage
  Fire Weather Supervisor, Telephone 272-5561 X-735

- State of Alaska

  The National Weather Service - Annette Island
  Meteorologist-in-charge, Telephone 882-3241

6.2 POINT SOURCES

The following people have been designated as the contacts for point source curtailment:

- Fairbanks-North Star Borough

  a. Golden Valley Electric
     Illinois Street Plant
     Superintendent of the Power Plant
     Telephone 452-1151 X-259

b. Fairbanks Municipal Utilities
Superintendent of the Power Plant
Telephone 456-6678

c. Fort Wainwright
Telephone

d. University of Alaska
Air Quality Control Engineer --
Dept. of Environmental Conservation
Fairbanks
Telephone 479-7351

e. Fairbanks Municipal Airport
Manager
Telephone 452-2151

f. Metro Field
Airport Manager
Telephone 452-3209

- Southeastern Alaska

a. Ketchikan Pulp Mill - Ketchikan
Operational Interface
Telephone 225-2151

6.3 NEWS MEDIA

- Fairbanks-North Star Borough
Mr. Kear
Telephone 452-7125

- Tri-Borough Air Resources Management District
Public Relations
Telephone 279-8686 X-316

- Juneau
Department of Environmental Conservation
Scientific Information Officer
Telephone 586-6721

6.4 STATE OF ALASKA

- Department of Environmental Conservation
State of Alaska
Air Pollution Control Engineer
Telephone 586-6721

6.5 PUBLIC SAFETY ORGANIZATIONS

- Fairbanks
  Civil Defense Director
  Telephone 452-1529

- Tri-Borough Air Resources Management District
  Emergency Disaster Office -- Anchorage
  Duty Officer
  Telephone 272-0594

- Ketchikan Gateway Borough
  Civil Defense Director/City Manager
  Telephone 225-3111

6.6 ENVIRONMENTAL PROTECTION AGENCY

- Anchorage Office
  Federal Facilities Coordinator
  Telephone 272-5561

- Environmental Protection Agency
  Region X
  Seattle, Washington
  Director of Air Pollution Control
  Telephone 442-1226 Area Code 206

- Environmental Protection Agency
  Emergency Operations Control Center
  Research Triangle Park, North Carolina
  Telephone 688-8110 Area Code 919